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TIME TO ACT:

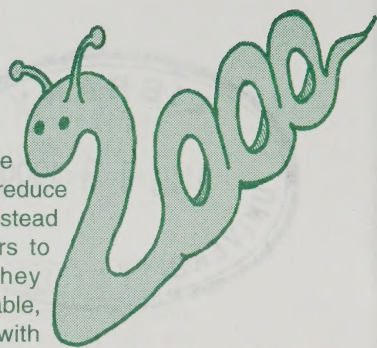
THE YEAR 2000 COMPUTER BUG AND AGRICULTURE

Developed by:

The Canadian Federation of Agriculture and

The Canadian Farm Business Management Council

WHAT IS THE YEAR 2000 BUG?



The Year 2000 bug stems from the need in the early days of computers, to conserve memory and reduce costs. Programmers wrote dates in two digits instead of four, and usually programmed the computers to assume that all dates were in the 1900s. They assumed that when memory and time were available, their programs would be replaced or rewritten with four digit dates. Unfortunately, the problem persists in some computer chips and programs. Many computers, computer programs and computerized equipment use "98" to represent "1998", and "99" to represent "1999".

The year 2000 is a problem, because when the date rolls over from "99" to "00", these computers will assume the year is "1900", not "2000". If this problem is not fixed, it will result in unrealistic and incorrect calculations of current date and time information, billing dates for shipping and receiving goods, : virtually any calculation which requires dates. Equipment which is date sensitive, such as security systems, watering and feeding machinery, may not work properly or could simply stop.

It is possible that programs or products which do not even use dates in their output will be affected. Many programs query the system clock (where the date problem will occur) for routine things, such as timing the use of a tractor's carburetor, and the usage time of a conveyor, and simply operating the equipment. Even if the "system clock" can handle the Year 2000, the software inside the equipment may not be designed to calculate or receive dates past December 31, 1999.

The problem affects both computer hardware and software, and computerized equipment. Any item with a computer chip inside is "at risk". The older the computer chip, the less likely it will handle the year 2000 and other "problem dates". The Y2K bug is a particular problem on the farm because of increasing reliance on computers and computerized equipment.

Remember that all parts of the computer or equipment must be able to handle the Year 2000 in order to run properly into the future. Be sure to check that both the computer or equipment and the software which runs it are able to handle the Year 2000.



Here are a few terms you may encounter when dealing with the Year 2000 computer bug:

COMPLIANT: A compliant device is able to handle the Year 2000 rollover and associated problems with the Year 2000 bug. Any device that cannot do this is referred to as NON-COMPLIANT.

COMPLIANCE: This is the "state" of being compliant; when inquiring about a computer or equipment's ability to deal with the Year 2000, you will be asking about its compliance.

COMPONENT: This is an additional part, such as speakers or disk drive of a computer. Components must be able to handle the Year 2000 for the computer to run properly after December 31, 1999.

COMPUTER CHIP: The chip runs the computer or equipment. All chips have a timing device, usually a clock, which uses hours only or both date and time. This clock must be able to handle the Year 2000 to function properly. Otherwise, it may correctly read "98" as 1998, but read "00" as 1900 instead of 2000.

Apple® Macintosh® computer hardware should not have Year 2000 problems. But be sure to check out software, and other hardware not manufactured by Apple®.

HARDWARE: This is a term for the physical parts of the computer, such as the mouse, keyboard, monitor, and printer.

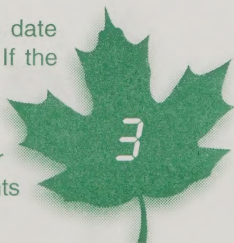
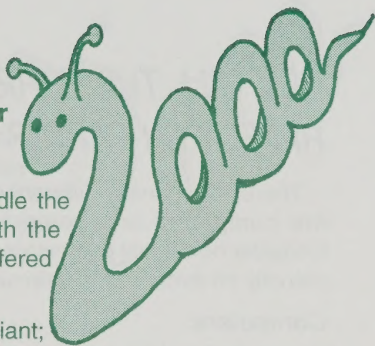
SOFTWARE: Software is a term for the programs which the computer or equipment must use to run. Examples include word processing programs like Corel WordPerfect® and Microsoft Word®, and Internet programs such as Netscape Navigator® or Microsoft Explorer®.

EMBEDDED CHIP: This is a computer chip placed inside equipment, machinery or other items. Embedded chips are a large concern in Year 2000 computer problems on the farm, since they are placed in so many objects, and are difficult to test and replace.

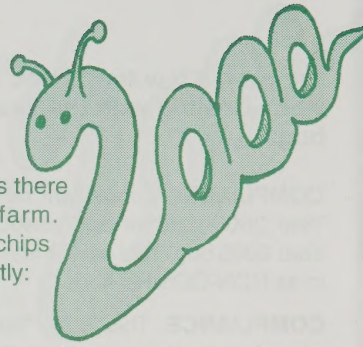
INTERFACE: This is the way in which you, the user, communicate with the computer or equipment, or the way different parts of a computer or numbers of computer chips communicate.

ROLLOVER: Also called the "date rollover", this is the date change from December 31, 1999 to January 1, 2000. If the item is not able to "deal with the rollover", it is not able to deal with dates past 1999 and/or other "problem dates".

Y2K: This is a short form for "the Year 2000" or "the Year 2000 bug", where "Y" represents "Year", and "2K" represents two thousand.



HOW WILL THE YEAR 2000 AFFECT MY FARM?



There are as many different effects of the bug as there are computers and computer chips on the farm. Consider how many computers and computerized chips you rely on every day to help run your farm efficiently:

Computers:

Computers (hardware and software) are used to run accounting packages, keep track of flock or crop information, store addresses and phone numbers of suppliers, processors and clients, and other essential business information.

Computerized equipment:

Embedded computer chips pose one of the major "Y2K risks" on the farm. That's because we find computer chips in virtually every part of the home, business and farm. Here's just a small list of what you might find:

On the farm:

- Tractors, scrapers, motorized equipment
- Ventilators
- Watering and feeding equipment
- Milking machines
- Security systems
- Fire, smoke, heat alarm systems

At home:

- Telephones
- Televisions, VCRs
- Microwaves
- Utilities, including hydro electricity, and hot water heaters
- Fire, smoke and heat alarms

At the office:

- Faxes
- Traditional, cellular and digital telephones
- Fax machines
- Photocopiers
- Desktop, laptop, network and mainframe computers
- Automated sprinkler systems
- Utilities, including hydro electricity, heating furnaces

The Year 2000 problem may seem overwhelming at first, but it's also a predictable, manageable problem. Think of it as a pest on your farm, which you can control or eliminate by taking some simple, smart steps:

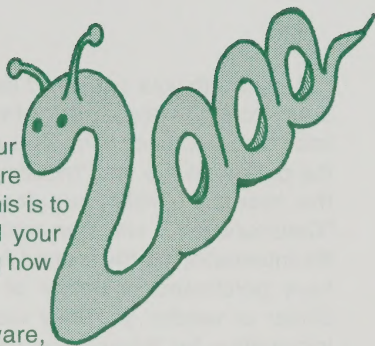
- LOOK & LIST
- PRIORITIZE
- COMMUNICATE
- BUDGET
- PREPARE



LOOK & LIST

The first thing you need to do is look around your farm, and list all of your computer hardware, software and computerized equipment. A good way to do this is to take a notebook or clipboard, and walk around your operation, making notes as you go. It's surprising how many computer chips are out there!

In your "walk about", look for computer hardware, software, and embedded chips. (See the Glossary on page 3 for definitions and examples.) Be aware that the list of hardware, software and embedded chips on the previous pages is only a guide: *anything* with a computer chip may be affected by the Year 2000 bug.



PRIORITIZE

Once you've made your list, you will need to re-organize it, according to importance and function of the items. You will want to tackle the most important systems first, before turning to the more "optional" or "entertainment" equipment. For instance, you will likely want to put your business computer (hardware and software) at the top of the list, and your VCR and/or television at the bottom. A good guideline for prioritizing your computerized equipment is to consider the business or personal risks you will face if the item stopped working. The greater the risk, the higher on the priority list — and the sooner you should check it out!

You may wish to divide your list into four categories:

ESSENTIAL

"Mission critical" — If these items do not work properly, your operation will be at risk of stopping production, and/or losing critical information, revenue or clients. This category includes items which perform functions which are difficult or impossible to do manually.

IMPORTANT

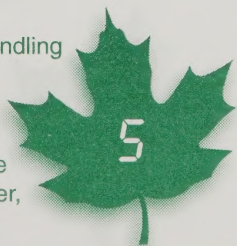
You *could* do without these items for a short amount of time, but it would be an inconvenience. Switching from automated to manual functions would be difficult.

NEUTRAL

You could function adequately without these items, by handling tasks manually.

MARGINAL

These items include personal entertainment and leisure devices, such as the games on your personal computer, your VCR, etc.



Armed with your prioritized list, you will need to start from the top, and gather all the crucial information on each item. It is best to gather all of the details on the first "mission critical" items, start the research with your dealer (in the next step, "Communicate"), and then return to your list to gather the information for the second item, and so on.... If you have purchased a number of items from the same dealer or vendor, you may wish to gather all of the information for these items together, and approach the dealer at one time. If you have lots of equipment bought from many different sources, it would likely be best to follow the order on your prioritized list.

You should gather as much information about each item as possible. You will want to make note of the following:

EQUIPMENT INFORMATION

This information may be found in the help files, manuals or other written information included in the packaging.

- Date and place of purchase.
- Make
- Model
- Other identifying information - i.e. serial number,
- Any customization, special orders or other alterations to the item
- Warrantee/guarantee/maintenance information - i.e. dealer provides tune-up of tractor after X hours of usage.

VENDOR/SALES INFORMATION

This information may be found on your receipt or bill of sale.

- Name of company/dealer
- Name of sales staff
- Address
- Phone number
- Fax number
- Web site / Email address

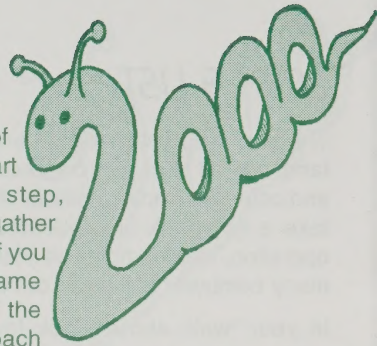
MANUFACTURER INFORMATION

This may be found in the same sources as the equipment information; also available through your dealer

- Manufacturer name
- Address
- Phone number
- Fax number
- Contact name/department
- Web site/ Email address

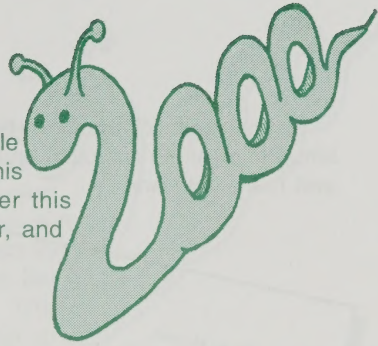


Be prepared for some delays in getting information. Dealers and manufacturers may not have the information yet, or may send form letters which do not address your specific concerns.



COMMUNICATE

The next step is to get in touch with the people who can help you answer the question "Will this equipment work in the Year 2000?" To answer this question, you will need to talk with your dealer, and maybe the manufacturer too.



EQUIPMENT

The easiest way to approach the Year 2000 issue is to treat it like any other warrantee or service problem. Start with your dealer. If you normally call or drop by your dealer's offices, continue to do that. Just make sure that you also provide the dealer with a written copy of your questions, and that you ask for answers in writing as well. You can bring the written questions with you, and give a copy to the dealer when you leave, or you can send it by fax, email or regular mail, as a follow up to your phone conversation. Either way, it's important to **"get it in writing"**!

When you are talking to dealers and manufacturers, do not take a simple "yes" or "no" for an answer. You may need to do some probing to get the answers you need, but it will be worth your piece of mind to have the full information.

If you don't already have a friendly relationship with your dealer, this is a perfect opportunity to establish one.

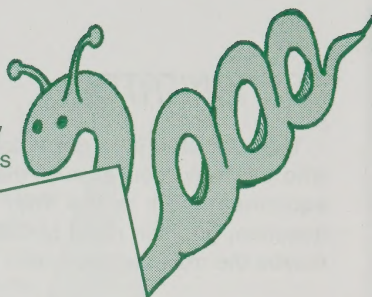
Be aware that the definition of "Year 2000 compliant" may vary depending on who you talk to. You will want to make sure that the computer chip and software are capable of handling the year 2000 and other "problem dates" associated with it. [For more details on "Problem Dates", see the CFA/CFBMC Y2K and Agriculture web site.]

You will want to find out:

- Is the computer chip Year 2000 compliant?
- Is the software run by the equipment Year 2000 compliant?
- Is the chip Year 2000 compliant and how do they know this?
- Who tested the equipment? Was it done by the dealer, by the manufacturer, or by the computer chip producer?
- If the item is not Year 2000 compliant, how will the dealer or management fix the problem?
- If the answers are not available at the moment, when will they tell you?
- When will they begin to service your machinery to ensure it is year 2000 compliant?



You may wish do this quickly by sending a "survey letter" to all of the computer and equipment dealers and manufacturers.



Dear Sir or Madam,

I am writing to enquire about the Year 2000 compliance of your products. I purchased a [product make and model] on [date of purchase] at [place of purchase]. Since this product contains a computer chip, I realize that it may have difficulties functioning properly after the date roll over to the Year 2000.

I would like to know the following about your company's Year 2000 plans, and commitment to your past and future products.

What is your definition of Year 2000 compliance?

Which versions of your (product name - make and model) are compliant? Which are not? Does the compliance status vary within the same make and model?

Has the manufacturer provided any documentation or details on the item's compliance? If so, how can I receive a copy of this documentation or details?

When was [product name - make and model] tested? If not yet, when will it be tested? If you are not going to test the product, why not?

What commitment are you willing to make to ensure this product continues to function properly?

If this product is not compliant, will you provide a solution so that it will become compliant? If not, why? Who is providing compliance solutions for this product? If yes, when will the solution be provided? By whom? At whose cost?

Will it be covered under the warrantee?

If you have any further questions about my Year 2000 concerns, please contact me at [address, phone number; fax number and email address if applicable]. I look forward to hearing about your Year 2000 product testing and results at your earliest convenience.

Sincerely,

B. Warner



Manufacturer information
is also available on the Internet (try
www.companyname.com — ie www.johndeere.com)
and through 1-800 phone numbers. 1-800 directory
assistance can be reached at 1-800-555-1212.
Contact your local phone company for details on fees.
You can also find Canadian phone numbers on the
Internet at www.canada411.sympatico.ca and
www.canadatollfree.sympatico.ca

COMPUTER HARDWARE & SOFTWARE

You will need to ask the same questions about your computer and software, but this time your best source of information should be the manufacturers themselves. For brand name computers, components (like a modem or speakers) and software, contact the manufacturer directly. Again, treat this situation like any other warrantee or service problem. The manufacturers of the equipment will have the most up to date information on your product, and what upgrades are available. Many major manufacturers have information on their web sites, as well as customer service available through 1-800 or other phone numbers.

If you have custom software, or a custom-built computer, you will want to contact the company who constructed or designed it. Ask the same detailed questions, and do not take a simple "yes" or "no" for an answer. As always, **"get it in writing!"**

When considering the Year 2000 compliance of your computer and software, do not be misled by the purchase date. Even newer machines and software may not be compliant, and it is your responsibility to check with the manufacturers to find out. Similarly, just because a program is part of a major package does not mean it is compliant. Always check with the manufacturer to see if you have a compliant copy, how

you can get upgrades to the "compliant version", and whether the upgrade is free. If not, you will need to add the cost of the upgrade to your budget (see next section for details).

Don't be shy about following up with another letter, more phone calls, another visit to the dealership, until you know if your equipment is likely to work, when that model will be tested and when your own product will be fixed if necessary.

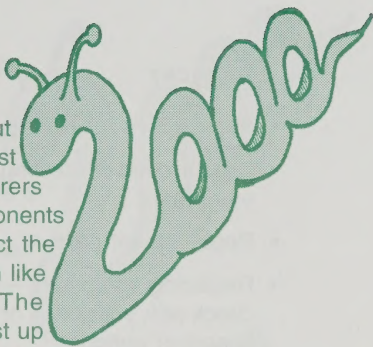
BUDGET

You will need to budget some money for ensuring your operation is Year 2000 compliant. In many cases, despite the initial costs, it will be cheaper to repair or replace non-compliant equipment, than deal with the consequences afterward. (Compare, for instance, the cost of a half hour repair now, to losing use of your equipment for days or weeks after December 31, 1999.)

Depending on your equipment, and your finances, your budget may include the following costs:

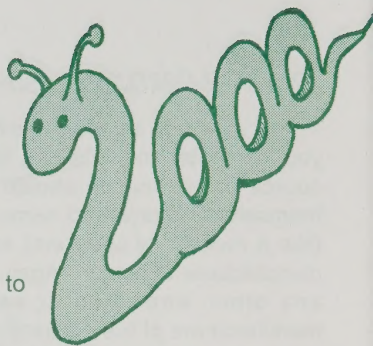
GENERAL:

- Postage costs for survey letters
- Long distance phone bills for inquiries



EQUIPMENT

- Service fees for having equipment tested
- Labour costs for testing, or repairing equipment
- Replacement parts
- Replacing equipment – you may also want to check with your bank or credit union about financing options

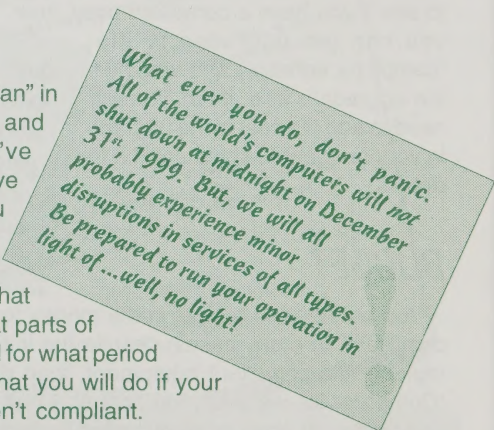


COMPUTER HARDWARE & SOFTWARE

- Service fees for tests and repairs
- Labour costs for testing or repairing equipment
- Replacing hardware – you may want to check with your bank or credit union about financing options
- Costs for buying software upgrades – this will be an almost certain expense, unless you have the most up to date (1998 or 1999) versions.

PREPARE

You may already have a “emergency plan” in place, for use during storms, floods, and other major disruptions. Once you’ve checked out your equipment, and have repaired or replaced as necessary, you should be prepared to put your “emergency plan” into action once the Year 2000 bug “kicks in”. Consider what you will do if your equipment fails, what parts of your operation can be run manually, and for what period of time. Do not forget to think about what you will do if your farm is running but other systems aren’t compliant.



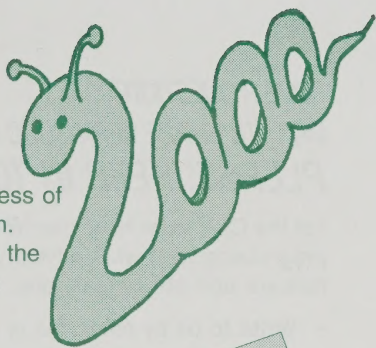
WHAT IF...

- your electricity goes out?
- your clients/buyers are not compliant?
- your suppliers are not compliant?
- your telephones go down or your cellular telephone service cuts out?
- your local gas station's pumps do not work?



THIS BOOKLET IS ONLY THE BEGINNING!

Your "Y2K project" should be an on-going process of gathering information, preparation and prevention. Here is a short list of other ways you can work on the Year 2000 bug, beyond the covers of this booklet:



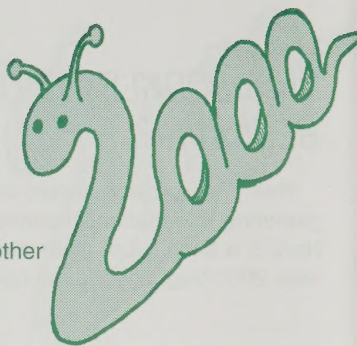
- **Keep the pressure on** your dealers and manufacturers to provide you with the information you need.
- **Continue to** look and list, prioritize, communicate, budget and prepare, as you find new problems and potential "Year 2000 risks" on the farm.
- **Stay informed.** Keep an eye on the media in the coming months for Year 2000 bug stories. Visit the Canadian Federation of Agriculture's website at <http://www.cfa-fca.ca> or the Canadian Farm Business Management Council's website at <http://www.cfbmc.com>, for more Year 2000 information. See the next page for details, and other sources of information about the Year 2000 and agriculture.
- **Tell your family and friends** about the risks of the bug, and help them prepare their farms and businesses.
- **Communicate with others** who are dealing with the bug. Share Year 2000 strategies and successes.
- **Set up a local "Year 2000 group"** in your area, to address the Year 2000 bug problems in the agricultural community.
- **Get out and do it!** This booklet and the other Year 2000 materials available on the CFA and CFBMC websites are only as useful as you make them.

Procrastination has a price. Start now. The closer we get to December 31, 1999, the more expensive the problem will be to find and fix.

It's your farm, so take charge: While dealers, manufacturers and agricultural organisations may offer you information and advice, it's your responsibility to ensure your farm will be up and running after December 31, 1999.



*HAVE A QUESTION?
WANT TO SHARE YEAR 2000 INFORMATION?
PLEASE, KEEP IN TOUCH*



Let the CFA know how your Year 2000 project is progressing, and what advice you would offer to other farmers and farm managers:

- **Write to us** by email, fax or regular post.
- **Use the "Feedback form"** on the Y2K web site

You can reach us at:

THE CANADIAN FEDERATION OF AGRICULTURE

75 Albert Street, Suite 1101, Ottawa, Ontario K1P 5E7

phone: (613) 236-3633 fax: (613) 236-5749

e-mail: farm2000@istar.ca Internet: www.cfa-fca.ca

THE CANADIAN FARM BUSINESS MANAGEMENT COUNCIL

75 Albert Street, Suite 908, Ottawa, Ontario K1P 5E7

phone toll-free in Canada: 1-888-23CFBMC local & International: (613) 237-9060

e-mail: farm2000@istar.ca Internet: www.cfbmc.com

OTHER SOURCES OF INFORMATION

If you're interested in learning more about the Year 2000 bug, or need some more help preparing your farm for the Year 2000, try contacting:

- **Industry Canada's Y2K hotline: 1-800-270-8220**
- **Manufacturers of agricultural equipment, computer hardware and software:** most have toll-free customer service lines and Year 2000 information on their web sites.
- **Your provincial commodity groups:** Many are covering the Year 2000 bug in upcoming issues of their newsletters, and other communications with farmers and farm managers
- **Your provincial government:** for agriculture specific concerns, contact the ministry of agriculture; for more general information, contact the provincial treasury board or the premier's office.

- **Your regional equipment dealers' association:**

Canada West Equipment Dealers Assoc.

(403) 250-7581

Ontario Retail Farm Equipment Dealers Assoc.

(905) 841-6888

Quebec Farm Equipment Dealers Assoc.

(514) 248-7668



TIME TO ACT: THE YEAR 2000 COMPUTER PROBLEM AND AGRICULTURE



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web site at <http://www.cfa-fca.ca> or
the Canadian Farm Business Management
Council's web site at <http://www.cfbmc.com>, for
more information about the
Year 2000 computer bug
and agriculture



THE CANADIAN
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OF AGRICULTURE

LA FÉDÉRATION
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